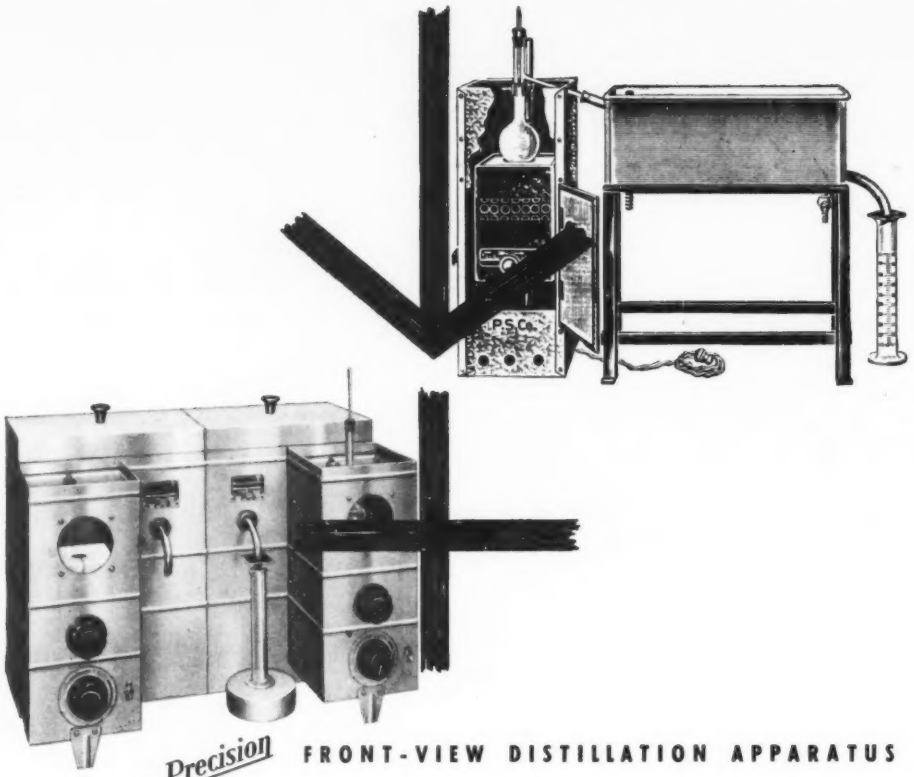
JUNE 1949

The NLGI Spokesman

In This Issue . . .

Official Publication of NATIONAL LUBRICATING GREASE INSTITUTE



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The direction of plus – A summary of achievement

Control of the heating rate in running distillations makes it necessary for the operator to keep his eye on both the thermometer and condensate graduate at the same time while adjusting the heat source.

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You can count on Cyanamid's AERO BRAND Stearates for the purity and uniformity that increase grease-making efficiency and improve lube performance. A unique new process, modern equipment, constant research and meticulous chemical control from raw material to finished product will always see to *that*.

And you can get prompt deliveries of AERO BRAND quality stearates, too —whether you order by the bag or by the carload. So, make Cyanamid's modern facilities *your* dependable source of supply. Place an order today.

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COMPLETE COVERAGE

Here Is Another Addition To The Hundreds of Battenfeld Lubricating Greases Available Under Your Brand

NEW

Gasoline Pump Lubricant

INSOLUBLE IN GASOLINE AND OTHER PETROLEUM DERIVATIVES

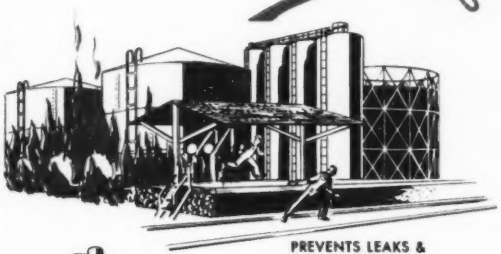
Again Battenfeld broadens its lubricating grease line with an unusual specialized product.

Gasoline Pump Lubricant is a new formulation manufactured to a gun grease consistency—yet it contains *no petroleum derivatives.* Gasoline or other petroleum products cannot dissolve or wash this lubricant from bearings. It sticks closely—adds years of wear to pump bearings.

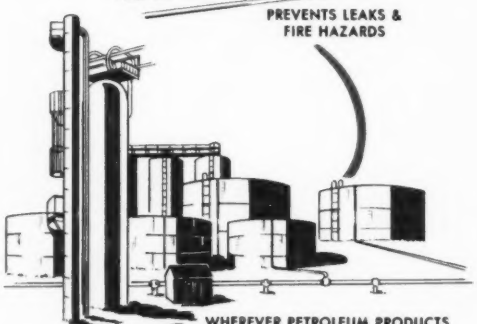
EASY TO SELL

Every Filling Station, Bulk Plant, Compounding Plant and Refinery will welcome this new lubricant. It means an end to leaky oil and gasoline pumps that eat into profits and are dangerous fire hazards.

Like all Battenfeld products, Gasoline Pump Lubricant is available to you packaged under your own brand and company name. Write today for complete details.



PREVENTS LEAKS & FIRE HAZARDS



WHEREVER PETROLEUM PRODUCTS ARE PUMPED

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GREASE & OIL CORPORATION

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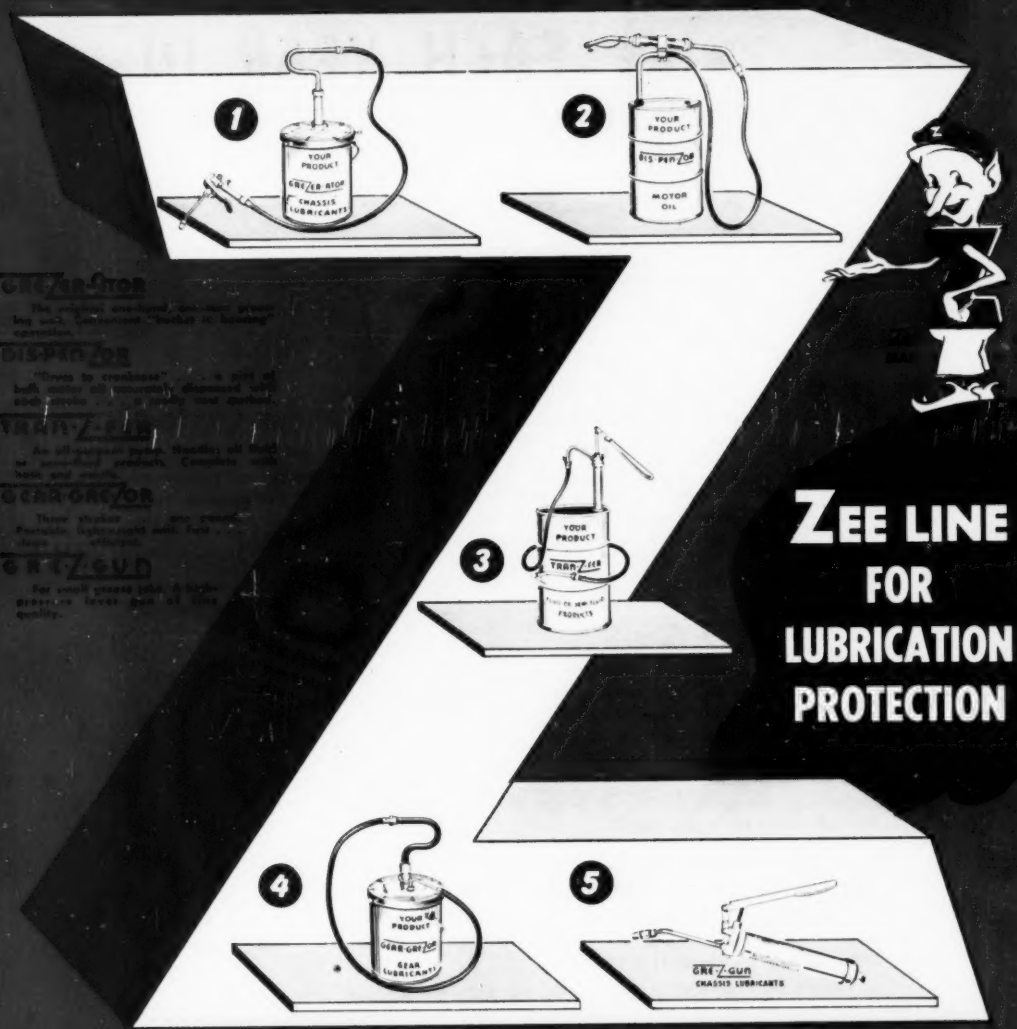
BATTENFELD GREASE & OIL CORP. 30th BUSINESS IS INCREASING

Always "REFINERY CLEAN"

when dispensed from the Original Container



1 GRE-Z-ATOR

2 DISPER-ZOR

3 TRANS-Z-EE

4 GEAR-GRE-ZOR

5 GRE-Z-GUN

ZEE LINE FOR LUBRICATION PROTECTION

ZEE LINE Promotional Lubricating Equipment is planned and designed to assure convenient clean lubrication. ZEE LINE products are distributed from coast to coast by the finest oil companies in United States. National Sales, Inc., sells directly to refiners and compounders only.

SOLD *Exclusively* TO AND BY THE OIL INDUSTRY

NATIONAL SALES, INC.

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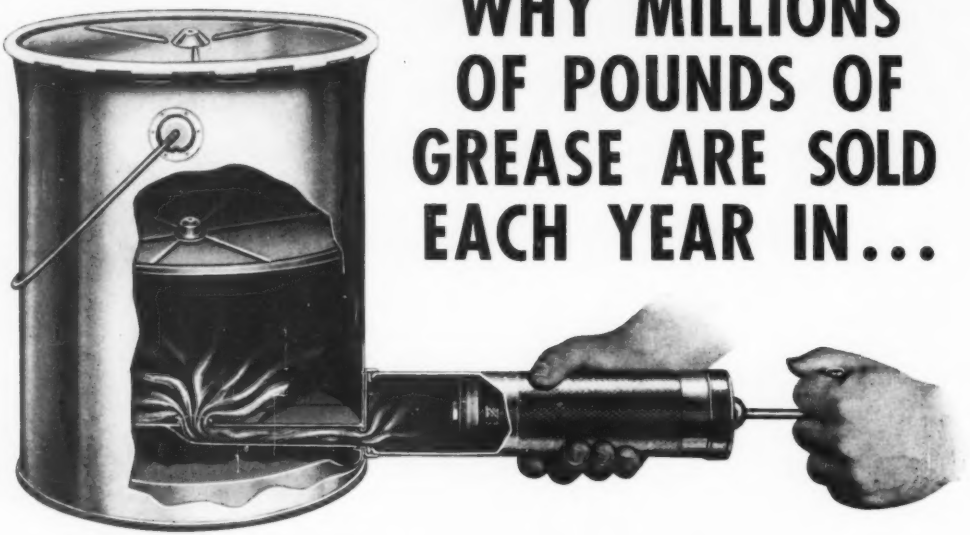
WHY MILLIONS OF POUNDS OF GREASE ARE SOLD EACH YEAR IN...



G.P.&F. E-Z-FILL Grease Gun Loader Containers

CONVENIENCE . . . *that's the big reason for the popularity of this container. E-Z-FILL* saves a lot of work for the man who uses a grease gun. It's a gun filling specialist that allows the grease to be drawn directly from the pail without removing the cover.

IT'S CLEAN — There is no messy handling involved. The grease never touches anything except the inside of the pail and the inside of the gun. The shut-off disc prevents drippings before and after the gun is filled.

IT'S FAST — Because it's simple to use. Just screw the gun into the socket, draw out the plunger and remove the gun. That's all there is to it.
As the grease is drawn out a follower plate moves down and controls its uniform removal. No air pockets in the gun.

IT'S ECONOMICAL — Because there is no wasted grease. Dirty grease is wasted money . . . but in this pail it can't get dirty because it is never exposed. Dirt, grit and moisture can't get into it.

Farmers, industrial plants, garages . . . anyone who uses grease . . . appreciates and wants these conveniences.

Are you selling part of these millions and millions of pounds of grease that are bought each year in E-Z-FILL Grease Gun Loader Containers? Why miss your share of this tremendous market?

AVAILABLE NOW IN 25 AND 35 POUND SIZES

Write today for more details on the E-Z-Way to boost your sales.

G.P.&F. STEEL CONTAINERS MILWAUKEE

GEUDER, PAESCHKE & FREY CO.

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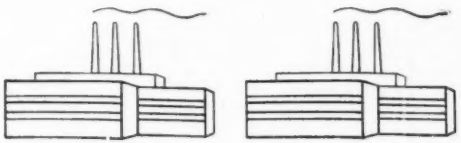
WITCO QUALITY STEARATES

available from two big modern plants:



aluminum · barium · calcium · lead · lithium

The Witco Chemical Company produces Witco Stearates in its own manufacturing plants – one located in Brooklyn, New York and the other in Chicago, Illinois.

Over twenty-five years' experience in the manufacture of stearates – plus continual research and laboratory control – are your guarantee of unexcelled quality and uniformity – no matter from which plant your shipment is made.

Stocks are maintained throughout the country so that you can be assured of prompt deliveries to meet all your requirements.

Remember: Witco Quality Stearates . . . for the production of quality greases.

YOU KNOW THAT WITCO MAKES HIGHEST QUALITY PRODUCTS

WITCO CHEMICAL COMPANY

MANUFACTURERS AND EXPORTERS

295 MADISON AVENUE, NEW YORK 17, N. Y.

LOS ANGELES • BOSTON • CHICAGO • DETROIT • CLEVELAND • SAN FRANCISCO • AKRON • LONDON AND MANCHESTER, ENGLAND

The INSTITUTE SPOKESMAN

Published monthly by

THE NATIONAL LUBRICATING GREASE INSTITUTE

HARRY F. BENNETS.....*Editor*

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Kansas City 2, Mo.

1 Year Subscription.....$2.00

1 Year Subscription (Foreign) 2.75

Highest Registration for N. L. G. I.

94 Companies Now Listed
One Sending 31 Representatives

With 94 companies already represented, the 17th annual meeting is an assured success. Most astonishing fact is the number of representatives registered from each company—31 are already registered from one organization. Judging from the number of representatives registered from each company, the trend seems to be toward, "no second-hand information for our company or its representatives." Everyone seems to be marching in the direction of bringing the message of this meeting directly to as many of their personnel as possible.

Many Representatives Bringing Wives

This meeting is also proving tremendously popular with the ladies. More than 70 wives and members of families are now registered, with more coming in. From the looks of things now, many of those attending are combining a family vacation with their annual pilgrimage to learn more about the lubricating grease industry.

Hotel Reservations Available

A short time ago word was sent from the N. L. G. I. office that no more hotel space was available. In answer to a multitude of new reservations, we were successful in obtaining a block of additional double rooms. These are fast becoming extinct with no prospect of obtaining more, such has been the demand for space this year.

Although some space is still available, you had better make your reservation NOW. Remember, you can always cancel a reservation, but a new one is difficult to obtain.

FOR RESERVATIONS — NOTIFY THE N. L. G. I. OFFICE, 4638 MILL CREEK PARKWAY, KANSAS CITY 2, MO.

Make yours before it's too late. Attend this meeting. Now as never before, first-hand information has become exceedingly valuable. Don't depend this year on hear-say and second hand reports of what went on at your convention. Get there YOURSELF and hear the latest about your industry. It will be one of your best investments during 1949 and 1950.

Vice President Daniel, Chairman of our 1949 Program Committee, has completed his job. The result will be a program intensely interesting to the entire membership; it covers a range of subjects directly affecting all branches of our industry.

ABOUT THE COVER . . .

Modern, more efficient packaging means money saved not only by the manufacturer of the product but primarily by the user of such product. A case in point is the packaging of Stearates. These metallic soaps of aluminum, calcium, magnesium and zinc are now available from American Cyanamid Company exclusively, in strong multi-wall (5 ply) paper bags, of which the outer layer is wet-strength paper.

The advantages of this bag packing to the user of stearates are threefold. In *shipping*, the bags withstand rough handling better than rigid cartons. In *handling*, time and labor are saved as bags are easily unloaded from freight car or truck; can more easily be transported by hand truck, or carried, than the heavier, bulkier rigid cartons; can be stacked in small, irregular areas close to process equipment; are easy to open. Small, 25-lb. net bag unit may eliminate weighing into process. In *storage*, space is saved as bags, ideally adapted to modern palletized storage, can be stacked to any height and also fit into small, irregular areas. Empty bags occupy little space and are easily disposed of.

President's page

by **B. G. Symon, President N.L.G.I.**

How often should motor oil be changed? This is a subject so timely that I feel I should devote a column to it even though it is outside the N. L. G. I.'s immediate sphere of interest. Actually, however, it's not too far afield, because most readers of the Spokesman are interested in one way or another, in lubricants in general.

In the past few months, many newspaper and magazines have carried stories stating, *under startling headlines*, that oil changes are necessary only every three or four thousand miles and *implied that the oil industry is guilty of "featherbedding" practices.* In most cases, the stories quoted government officials or automobile manufacturers. Because of their wide circulation, these articles should be a cause of concern to all of us in the motor oil field. They point straight toward a big job we have to do. We must distribute straightforward information on this subject through every possible channel, particularly through service station dealers to counteract the misleading information being spread.

We need to emphasize only a few simple facts:

(1) Although many government agencies and automobile manufacturers recommend oil-drain periods in excess of 1,000 miles, most of them qualify this recommendation with numerous exceptions. Their advice does not apply, for example, to "driving over dusty roads," "short runs in cold weather, such as city driving and excessive idling," and so forth. We must urge motorists to read the fine print as well as the startling headline in government and automobile manufacturers' recommendations. A careful reading of such exceptions as the above discloses that they apply to most cars on the road.

(2) According to the American Petroleum Institute, the industry's recommendation of an oil change every 1,000 miles "is based on averages, the result of observing the performance of millions of cars operating billions of miles." It is obviously impractical for the ordinary motorist to make the careful chemical analysis necessary to determine whether or not his oil needs changing before or after the 1,000-mile mark. His best course is to accept the recommendation proved through years of tests, to be safe and dependable for most cars. *Of course, operators of large fleets such as government agencies who employ competent engineers and chemists to supervise operating costs can afford to make certain adjustments from these averages to suit their own operating conditions. Because the ordinary motorist is not in a position to do this, he must, as he does in his other operations, "pay an insurance premium" and drain on "average" safe periods.*

(3) One thousand mile oil changes are actually more economical than less frequent changes. The A.P.I. pamphlet, "How Often Should I change My Oil?" gives three reasons why this is so: "First, draining (at 1,000 miles) gets rid of the contaminants that speed up wear and impair performance, waste power and fuel; second, engine deposits built up by excessively long use of oil *impair piston ring and valve performance*, thereby actually increasing oil and fuel consumption; third, efficient lubrication with fresh, clean oil reduces service troubles and expense, improves reliability and lengthens car life."

(4) Some motorists believe that use of oil filters eliminates the need for frequent oil changes. They should be told that filters, when replaced regularly, are a means of extending engine life, not the drain period. While they help to remove dirt and other abrasive particles from the oil, they do not effectively remove other contaminants, *mainly from partly burnt fuel which are soluble in the oil* and which are equally damaging to the engine.

(5) Some motorists believe it unnecessary to change oil frequently because they use their cars only for short trips. They should be told that, from the point of view of engine oil deterioration, on-and-off driving around town is perhaps the severest condition a car has to meet.

Space limitations make it impossible to list all the reasons why motorists should change oil every 1,000 miles. Most readers of the Spokesman know them well, and everyone should remember that it's up to us to publicize them. A good way to do it is to distribute copies of the A.P.I. pamphlet, "How Often Should I Change My Oil," to service station dealers, in order to arm them with convincing answers to motorists' questions. Or if you prefer, prepare a mailing piece of your own on the subject. The important thing is: let's combat this misinformation before it spreads any further.

Typical Material from Chek-Chart's Campaign Promoting "1000-Mile Lubrication for Safety"

IT'S *time* TO DO A *selling job*

By RAY SHAW

President The Chek-Chart Corporation

MR. SHAW

I DON'T KNOW whether the sales curve on automotive lubricants is up or down because, so far as I am aware, there are no uniform and properly classified sales statistics available in your field of operations.

But I do know that you have been innocent victims, so to speak, of dangerous and misleading propaganda during the last few months; and I fear that unless you take vigorous measures to carry the truth to the public, you will suffer a drastic and permanent loss of business.

I refer, of course, to the false conclusions drawn from the misleading statements by writers who see an easy way to sell their articles by lambasting our industry.

Controlled Tests Plus Sloppy Reporting Equals Accidents

The more I think about these articles, the more confirmed I become in previously held opinions of their danger to the safety of our people. If a private corporation—an oil company, for example—wanted to establish facts which would be applicable to every-day conditions it would do its best to simulate those conditions in its tests. These articles are based on an entirely different set of rules. They report on the behavior of vehicles which enjoy all the benefits of controlled maintenance and which have in their crankcases specially fortified, heavy duty motor oils meeting rigid U. S. Army specifications. Then they publicize a report which conveys the impression that the every-day driver may safely adopt the same drain interval at a time when public-spirited agencies are engaged in a crusade to cut down our alarming automobile accident rate by exercising greater diligence in keeping our cars in safe operating condition.

It is true that these reports make certain exceptions. "More frequent changes may be needed," they say, "in cars which make many stop-and-go runs in cold weather or which are often driven in sand or dust." Psychologists tell me, however, that the human mind seeks constantly to coddle its owner by throwing off the unpleasant and retaining the pleasant aspects of any situation. All that most readers will conclude from these reports is: that they may forget their motor oil for more than 1,000 miles. And since many car owners associate crankcase drains with chassis lubrication, they will overlook this phase of maintenance too—until failure of some part places them on the receiving end of a big repair bill or, even worse, in the middle of a serious accident.

Car Owners Realize Relationship — Do We?

I realize that members of the Institute are primarily interested in lubricating greases rather than motor oil. But because the two are so closely related in the minds of most car owners, grease manufacturers have good reason to join the motor oil boys in counteracting the influence of these recent reports.

"Exceptions" and "Normal" Reveal Truth

One effective method lies in exposing the truth by bringing out into the open the *exceptions* found both in these reports and the manuals of automobile manufacturers. Most of these exceptions stress departures from "normal" driving conditions—cold weather, frequent starts and stops, dusty roads, etc.

The danger of the word "normal" is that most of us feel that our driving falls within its meaning. Actually, it is probable that most cars encounter the exceptions. We use our automobiles for short trips—to the railroad station, the shopping centers, to nearby friends, to the movies, etc. Every urban housewife, busy with her daily cleaning chores, will confirm the fact that the air of cities and towns is laden with dust. Country dwellers will tell you that in dry periods every driver using gravel roads creates his own dust storm, and that its effects extend to paved roads. Those of us who live in northern climates use our cars through the winter and thus cannot escape cold-weather driving. Where, then, does one find "normal" conditions which, in the sense used, seem to mean "ideal" conditions?

Facts to Public by Cooperation

As we all know, there are also many technical conditions that make over-extended drain periods dangerous

and expensive—conditions having to do with the close-fitting parts of modern cars, fuel and water dilution, abrasive contaminates, oxidation, etc. These have been well covered in recent papers by Dayton P. Clark, chairman of the American Petroleum Institute Lubrication Committee, and A. C. Pilger, of the Eastern Division of the Tide Water Associated Oil Company. There is no need in repeating them here. It would be a mistake to assume, however, that because oil men know the facts and discuss them among themselves, they will automatically influence public opinion. To be effective, they must be carried to the public—in articles in popular magazines, through your own bulletins and house organs and, most important, through your contacts with service station operators, garages and car dealers.

Cooperation in undoing some of the effects of these recent reports is important because drain intervals have a direct bearing on frequent grease lubrication. But such cooperation is by no means the main subject of this message. The point I really want to get over is that the time has come to apply some real merchandising to lubricating grease sales.

Consider the facts. Here you are making one of the most important of all automotive "parts"—the "part" that protects other parts from premature wear. You help to supply one of the world's most economical and important forms of insurance. You provide the ingredients of a service that should be applied to 30 million vehicles every 1,000 miles. What's more, you should enjoy the advantage of almost universal agreement on this point; for while car manufacturers recommend different drain intervals, all, with a single exception, recommend 1,000-mile chassis lubrication. Service station operators like 1,000-mile chassis lubrication because of the regular opportunity it provides to inspect the customer's car, and keep it in safe running condition for his family and himself.

And so we have a situation wherein everybody within the industry is agreed on 1,000-mile chassis lubrication. But what have you done to sell the idea to the car-owning public? How many car owners could list even a fair percentage of the parts and the units that are protected by such lubrication, or explain its relationship to low maintenance cost and car safety? How many service station operators have been trained to deliver a convincing safety story on 1,000-mile lubrication? What steps have you taken to keep the idea of 1,000-mile lubrication constantly in the minds of motorists? In a word, what action have you directed to the all-important safety objective of increasing overall use of automotive greases?

It's a job that should be done, gentlemen, and it needs to be done quickly, before growing doubt about oil changes leads to increasing carelessness in chassis lubrication.

No Magic Formula Offered

I can offer you no magic formula by which the desired results may be quickly accomplished. But I do have a deep faith in the power of well planned and sustained publicity when applied to worthy causes. I think of how effectively the orange growers keep reminding us of the health and taste appeal of their product; of the way in which the slogan of a dentifrice manufacturer has led tens of thousands of us to visit our dentists twice a year, and of the success of the florists in making "Say It with Flowers" a universally recognized slogan. I can't help thinking that some of the methods used in attaining these ends could be used with profit in making 1,000-mile lubrication the rule rather than the exception among car owners. Such an objective is of nation-wide significance because it affects the safety and economical performance of our national pool of motor vehicles—30 million vehicles with a combined value of perhaps 30 billion dollars.

A National Educational Campaign

Many of you will throw up your hands at the very suggestion of a national educational program because of the limited funds available for promotion. As a matter of fact, there is much that can be done by any company which does not involve additional expenditure. As for the entire job, if it is too big to tackle individually, maybe it should be tackled collectively. Maybe the activities of the Institute should be expanded to include a full-scale program of sales research, publicity and education. It is not, however, the function of this article to discuss the means by which the program may be activated but rather to point out some of the things that should be done as a matter of good business and public service.

The First Step to Educating Public

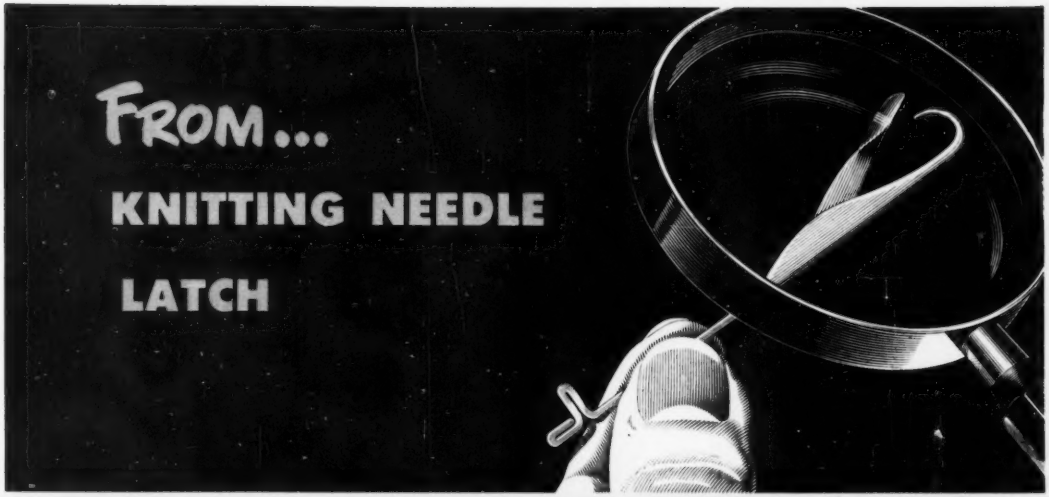
First among these things I would place the task of enlisting the support of the industry in behalf of its own slogan—"Lubricate for Safety Every 1,000 Miles." It pains me every time I think of that slogan. It is a good slogan. It has rhythm, rememberance value and safety value. It has the sanction of both your Institute and the Lubrication Committee of the American Petroleum Institute. And yet, it has failed to win the cooperation of those whom it would benefit most.

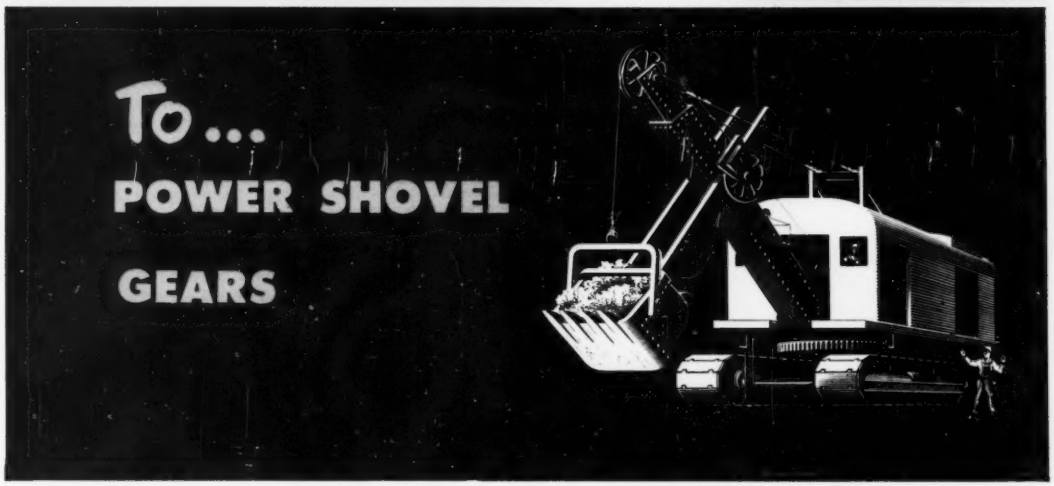
To get an idea of the recognition this safety message might now be enjoying, think of the billions of messages that the oil industry has delivered since it was first introduced—through the medium of letterheads and printed forms, bulletins and house organs, radio and television programs, painted signs and billboards, magazine advertising and direct mail. Without adding to costs, the slogan could have been included in most of these messages. It could rank among America's best-known urges. It could have been impressed so deeply in the minds of car owners as to govern their lubricating habits. But the industry failed to get back of it with enthusiasm and a golden opportunity was muffed.

What Is Your Record of Support?

Before blaming the other fellow for this condition, it might be well to examine your own record of support. Do the words "Lubricate for Safety Every 1,000 Miles" appear on your letterheads, invoices and statement forms? Have you issued instructions to your advertising department and advertising agency to include them in all literature? Only through 100 per cent cooperation can the message attain its full power and influence.

Fortunately, it is not too late. The opportunity is still there and the avenues of publicity still exist. Am I wrong in saying that your industry will be guilty of bad judgment and bad business if it does not unite in making an effective slogan part of the American vocabulary?





What is your lubrication problem?

Differing as much in lubrication requirements as they do in size, high-speed knitting needles and ponderous power shovel gears both operate perfectly under the protection of the correct Shell lubricant.

The Shell Lubrication Engineer has as his stock in trade a lubricant to meet your every need . . . his function is to select the right one for each job, or to draw on the full resources of Shell Research if necessary.

From his experience, the Shell Lubrication Engineer can help you when something's wrong and needs quick attention—and he can help prevent trouble by analyzing your equipment right now to see that you are getting the benefit of all that's new in lubrication.

. . .

Call the Shell Lubrication Engineer any time. He's a good man to know.

SHELL

SHELL OIL COMPANY, INCORPORATED

50 West 50th St., New York 20, N.Y.; or 100 Bush St., San Francisco 6, Calif.

About the Author

Raymond Shaw, President of The Chek-Chart Corporation, 31 East Congress Street, Chicago, Illinois, has for many years been connected with the lubrication and accessory information branch of the petroleum marketing industry.

In gathering and compilation of Chek-Chart service data, he and his organization have had much contact with the automotive and accessory industry, as well as with the petroleum industry. Chek-Chart Lubrication Guides and Chexall Accessory Service information are used wherever automotive equipment is lubricated and serviced—not only in the United States but in many foreign countries.

Mr. Shaw began his business career in newspaper work, where he first visualized the opportunities inherent in the oil marketing field. He became the advertising manager for "Oil News" and started the publication, "Fuel Oil." He was responsible for the formation of the Illinois Oil Marketers Association, served as advertising director of Independent Oil Men of America, and served on the staff of Roche Advertising Agency.

During World War II, Mr. Shaw and his organization were called upon by the War Department to assist in setting up a lubrication program for most of the Army's mechanized equipment. The program was so valuable in assuring that military equipment was properly serviced that it was carried over into peacetime Army operations.

Mr. Shaw is well known throughout the automotive and petroleum industries. He is a member of the Society of Automotive Engineers and American Petroleum Institute.

Recognized throughout the industry as an authority in marketing practices, Mr. Shaw is in great demand as a speaker wherever oil marketers congregate; on many occasions his talks have provided the necessary "push" in the development of new marketing approaches and practices.

Higher Degree of Standardization

High on the agenda of things to be done is a concerted effort to bring a higher degree of standardization in lubrication recommendations. When manufacturers specify different lubricants for comparable units and points, two very serious conditions arise:

1. The total number of grades and types recommended by all manufacturers becomes so great that no lubrication department can stock all of them. This necessitates substitution by men totally unqualified to say which type and grade can safely be used in place of those specified.
2. When lubrication men notice differences in recommendations covering the same or comparable units, they tend to lose faith in all recommendations.

Serving both the automotive and oil industries, The Chek-Chart Corporation has taken the lead in calling attention to these dangers and in urging cooperation in correcting a situation that is already serious and destined to grow worse unless remedial action is taken. As part of its program, our company has prepared complete comparison charts which show graphically the differences in recommendations, lubrication intervals and temperature ranges governing parts which are similar in design and function. The response has been most gratifying. Automotive engineers and petroleum engineers both agree on the need for standardization. What is now needed is a plan for turning agreement into action. The project is currently under consideration by the Lubrication Committee of American Petroleum Institute. Perhaps your Institute could help to speed its fulfillment.

Training Program for Everyone

One of the greatest and most urgent needs in your business, in my opinion, is a full-scale, authoritative training program which should extend from top management to sales representatives and be carried by the latter to every service station operator in the country. If your men are to coach the dealer in selling lubrication, they must themselves be real authorities. They should know the design and function of the parts protected by chassis lubrication; be thoroughly familiar with the nature and application of lubricants and the requirements and peculiarities of various car models, with special reference to such modern developments as Dynaflow, Hydromatic, Fluid Drive, etc. They should have at their finger-tips a mass of information on the advantages of 1,000-mile lubrication and the penalty of neglect. If every sales and service man of every supplier of lubricating greases were properly trained, and if every man were charged with the duty of training his dealers, a quarter-million service station operators and perhaps a like number of their employees would be added to your sales force.

Embark On a Research Program

I would suggest to you also that either individually or collectively you embark upon a program of research designed to unearth such facts as the lubrication habits of car owners, the reasons for infrequent lubrication, the number of accidents that may be traced to lack of lubrication, the relative difference in upkeep costs between cars that are regularly lubricated and those that are not, etc., etc. As part of its assignment the research men should gather photographs as well as statistics. The information so compiled will be of inestimable value both in planning your sales program and in gearing it to realities.

Dramatic Facts from Research

Using the data and photographs gathered through research, you are in a position to prepare and release a flow of publicity to newspapers and magazines. The speed with which the public learned about the recent report that 4,000-mile lubrication is sufficient for safety;

is a striking example of the power of publicity. The same columns are available to you provided your items and stories are based on dramatic facts and skilfully prepared, with "angles" that give them popular interest, news value or both.

N.L.G.I. Could Perform Important Service

Finally, I am hoping that means may be found to step up the advertising on 1,000-mile lubrication. If you are a member of a large oil company, you have every reason to fight for greater recognition in the advertising of your firm—on the basis that increased lubrication requirements automatically mean increased gasoline business, as well as oil, tires, batteries and accessories, because it establishes customer confidence. If you manufacture lubricating greases exclusively, you probably cannot afford national advertising, but you can supply your dealers with signs, hand-out and direct mail pieces, radio commercials and newspaper mats. It seems to me that your Institute could perform an important service in making such material available, thus distributing preparation and mechanical costs over many users.

Such advertising should be factual because we live in a realistic period, and it should be based on data and photographs gathered by your research program. I envision a close-up photograph of an accident with text which explains that the tragedy was caused by failure of a grease-starved part. I see another photograph of a repair job with a heading: 2c WORTH OF GREASE WOULD HAVE PREVENTED THIS $53 REPAIR JOB—LUBRICATE FOR SAFETY EVERY 1,000 MILES. I see advertising signs and literature of all kinds made more dramatic and effective through collective effort in gathering the required facts and pictures and translating them into powerful selling messages.

Merchandising Safety Is Service

This is the merchandising age. It is an age in which many companies and individuals are using highly developed methods and techniques to woo the consumer's interest. It is easy for a car owner, under such conditions, to neglect chassis lubrication. But we all know that such neglect is costly and can be tragic. As a public service, therefore, and as legitimate means of protecting your business, I feel that it is time to apply some of the same methods and techniques to the merchandising of lubricating greases. I have a feeling also that you will be amazed by the power of cooperative effort in which many activities, sponsored by many different companies, are all pointed to the same objective. That objective, in your case, is to convince the American car owner that thrift, prudence and self-protection all call upon him to "Lubricate for Safety Every 1,000 Miles."

Reorganization Takes Place At A. Gross & Company

M. J. McCarthy, Vice President and Treasurer, who formerly directed sales, now is in charge of purchases, as the result of reorganization of the executive personnel of A. Gross & Co., 295 Madison Avenue, New York City, manufacturers of stearic acid, red oil, glycerine and fatty acids, announced this week by David Mahany, Chairman of the Board. Eugene W. Adams, Vice President, who had been Mr. McCarthy's assistant, now is in charge of sales under the new setup.

Motor at the Left Is Used in Testing High Temperature Greases in the Lubricating Laboratory of the Works Laboratory, General Electric Co., Schenectady.

What is known about High-Temperature Greases

THE AVERAGE grease sold today for lubrication of ball and roller bearings will roughly stand about 80° C or 175° F for continuous operation and for a reasonable length of time without needing replacement.

This is the actual temperature of the grease as measured by placing an accurate thermocouple in contact with the outer race of the bearing. Some spots may run, a few degrees hotter, but the above location gives a fair average. By a reasonable length of time, is meant 4 to 12 months, depending on the severity of service. In this field there are many good greases that are rendering very satisfactory service.

The standard tests to which these greases are subjected are consistency or degree of stiffness, dropping point, and a measure of degree of acidity or alkalinity. These tests are those sponsored by ASTM, Committee D-2 on Petroleum Products. In addition to these, recent specifications issued by various branches of the government call for certain other tests, such as chemical stabiltiy or resistance to oxidation by the oxygen absorption method bleeding, low temperature torque, etc., which are not yet standardized by ASTM.

It has been realized for some time that consistency as measured at present is only a relative property. It is known from past experience that a grease softer than a certain consistency will be hard to retain in a bearing, especially if there are poor bearing seals. On the other hand, if the grease is too stiff, it will not stay in well around the ball bearings, but will be thrown out into the bearing cap and, besides being too hard to apply with the ordinary grease gun supplied for relubricating bearings, it will channel at low temperatures.

Therefore, a certain desirable consistency range is chosen and the limits established, taking all of these things into consideration. Dropping point also is not a criterion of what the grease will do in service. It is possible to have greases with dropping points ranging from about 260° F to more than 400° F, and the grease with the 400° F point may not stand an operating temperature of over 80° C any better than the lower dropping point grease will.

Acidity and alkalinity in greases as measured today does not mean too much. It is known that when the average grease is on the acid side, there is a tendency

for the oil and soap to separate (bleeding), and when the grease is alkaline there is usually greater physical stability and resistance to oxidation. Therefore, most manufacturers try to keep their greases alkaline or at least neutral. But there is not a good means of evaluating the acids that may be present in a grease on the acid side to see whether they are harmful or not. It has always been felt that various greases do not always produce the same acids on oxidation. The oxidation products formed depend upon the type of oil the grease is made from, and the break between the acids formed of a harmful and harmless nature may be about at the water soluble line or at about valeric acid. In other words, if the acids formed on oxidation are formic, acetic, propionic, butyric or valeric (and they are more likely to be acetic or butyric) they may give trouble if present in only a few tenths of a per cent if the surrounding atmosphere is very humid.

If they are above valeric acid, such as palmitic, oleic or stearic acids, the chances are that they are not too harmful. On the alkaline side, some very stable greases have been made with a free alkali content as high as 0.8 per cent. So, even for greases for use at ordinary temperatures, there is very little data available, and practical tests in operating motors are the best source of the final answer. In the field of high temperature greases, the lack of knowledge is much more apparent. Is it possible to be reasonably certain that a grease selected will give satisfactory service at those higher temperatures?

Before answering, consider just what is expected of a grease used in bearings. The purpose of all lubricants, of course, is to reduce friction by separating the moving surfaces with a film of a material that will allow them to slide over one another easily. Oils, satisfactorily used for many years, are becoming increasingly difficult to hold them because of the trends to use thinner grades. They drain quickly from the bearings and settle to the bottom of the housing, leaving the bearing surfaces poorly protected against corrosion.

If the apparatus is to be used vertically or is located in a place where dust and dirt are prevalent, these will also find their way into the bearings more readily if oil is used.

To satisfactorily overcome these drawbacks, a very elaborate and costly set of seals must be designed. The oil must also be replaced frequently. So the use of grease has come to the front, because apparatus using grease can be built at lower cost, can be better protected from dirt, etc., and does not require such frequent lubrication.

A grease, being a mixture of an oil and a soap, can be no better than the oil from which it is made. In the past many greases started off with an oil base that was inadequate for use at even ordinary temperatures. When considered for high temperature use they were hopeless.

High temperatures do not necessarily mean levels of 150° or 200° C, although applications for these temperatures are now under consideration. Greases are sometimes advertised as being efficient lubricating medium at such temperature because they have a dropping point in that range, but in most cases these claims should be taken literally. Investigations have shown that there is no known rule to follow, and that results will vary with each grease, depending on its constituents and method of manufacture. Very few greases will give satisfactory results at temperatures much higher than about 85° C for applications which are really hard to lubricate, and for those that operate higher than 95° C the field of selection among greases that will give adequate lubrication becomes really narrow.

There are widely divergent schools of thought on desirable consistencies of grease for ball and roller bearing applications. Some specify a very hard, stiff grease, most of which will be thrown clear of the bearing, and depend on enough oil bleeding to supply the necessary lubrication. Because of uncertainty in this factor, there has been some opposition to the use of very hard greases.

If the bearing is packed by hand, the use of a stiff grease will not be objectionable from the application angle, but if the grease is to be applied with a hand-pressure gun, it must be capable of being pushed through the gun without too much effort. Some of the greases contain high viscosity oils that are of such consistency that only a strong man can exert the necessary pressure, if the bearing is to be filled in a reasonable length of time. In spite of these factors, most of the greases advocated for high temperatures have been decidedly on the stiff side in the past.

In light of these facts, the softer greases have always found much favor, and much practice and evidence to substantiate beliefs that a satisfactory high temperature grease can be obtained with worked ASTM consistencies ranging from 250 to 290.

Greases in this range can be more readily applied and will be soft enough to lubricate spherical roller bearings. This type of bearing is one of the hardest to lubricate satisfactorily, and if grease cannot flow in around the edges of the rollers easily, excessive wear of the retainer follows. As roller bearings are being used more widely for some types of electric motors, this is a factor that has to be considered.

The speed at which the bearing operates is also very important. It is questionable whether the speed of the bearing should be estimated only on the basis of the

by

H. A. McCONVILLE

Works Laboratory
General Electric
Company
Schenectady

Reprinted from
Production Engineer

rpm, regardless of size of bearing, or whether the running feet per minute speed of the balls, as measured by taking the diameter between centers of the balls xx rpm, should be used as a basis.

A figure of 2,000 running feet per minute, estimated by this latter method, has been suggested as the maximum speed at which ball bearings can be run without paying especial attention to lubrication, other than adding grease once or twice a year. Above that speed, grease should be applied more frequently, even if operation is at room temperature. When the ambient or operating temperature is higher, the stability of the grease will of course be lessened and more frequent replacement may be necessary.

A very large bearing operating at speeds of approximately 600 rpm can also give trouble with lubrication, especially if the grease used has a tendency to thin down much with working. It is believed that the large balls, moving at not too rapid a rate, mill the grease down just as the grease manufacturer may do when he works a grease during the manufacturing process. In this way a relatively stiff grease may be reduced to a thin liquid and leak out.

An important point in operating at high temperatures is not to fill the bearing too full of grease, and to allow for the expansion which takes place in volume under heat, in varying degree with different greases. A bearing filled with a pressure relief system should always have the excess pressure relieved by opening the drain plug and freeing any hardened grease there may be there. This should be done at the highest temperature at which the motor will operate. If the housing is only relieved for ordinary temperatures and the motor is suddenly put in a much higher ambient, a grease pressure may build up in the housing which will thin the grease down so much that it churns in the housing and overheats the bearing. Most hot running bearings cool down quickly when the excess grease is removed.

High temperatures can do many things to a grease, such as causing rapid oxidation, thinning of consistency, evaporation of oil, stiffening, and, under certain extreme conditions, even causing corrosion.

Oxidation is one of the worst troubles to overcome. The rate increases rapidly as temperatures exceed about 190° F. Noticeable effects of oxidation are a rancid odor, increase in acidity, decrease in the dropping point, and in some cases, bad separation of oil and soap. Finally, the grease becomes sticky and gummy, and if the apparatus is idle for a long time, bearings may become locked or frozen. If a grease of the proper soap base is not chosen, it may actually be operating at a temperature above its melting point, in which case the grease will liquefy and run out if the housing is not tight.

If the grease is made of an oil of light viscosity from an oil from which the light volatile ends have not been removed, there may be a high evaporation rate. Some greases are known to have lost 65 per cent of their weight under high temperatures. Under these circumstances, the remaining mixture is so high in soap that it becomes very stiff and hard, and bearings fail from lack of lubricant.

Corrosion is only rarely noticeable, but if there are bronze retainers in the bearings, if the grease has oxidized quite badly, and if the apparatus is operating in a highly humid atmosphere or near salt water, a green coloring of both bronze and grease may be encountered with some types of greases.

These inherent faults of the grease can be overcome to some extent. Logical steps are to use soaps of a nature which will stand higher temperatures, to use an oil of good viscosity (500 sec. at 100° F. or higher) from which the light ends have been removed and a suitable anti-oxidant added in sufficient concentration, and to choose a grease that will not be driven off at the operating temperature. Incidentally, very few satisfactory anti-oxidants have been found to date.

During the war there was a Government requirement for high-temperature, water-insoluble greases, and several were developed to Government specifications. Peacetime applications for this type of grease are very rare. There were many differences of opinion as to what constituted water insolubility. Most sodium and sodium-calcium base greases were eliminated by this restriction, and in general these two types have been most successful for high-temperature applications. The high-temperature, water-insoluble greases usually contained lithium. But grease manufacturers have been at work during the past few years, and new types of grease now are available for high-temperature work.

The metals with which the grease is in contact with have a big effect on its stability at high temperatures. Experiments have shown that the rate of oxidation of a grease that is in contact with bearings fitted with bronze retainers is three to four times that of ordinary steel. On the other hand, ordinary naval brass seems to submit most rapidly to oxidation with aluminum bronze also being quickly affected. Stainless and rustless steels are not too good. One of the most stable surfaces however, is chromium plate. There is a distinct possibility that the bearings and housings of the future will have to have the metals used in their construction given very careful consideration as operations in the high-temperature field expand.

At the present time there is not enough data on high-temperature greases, computed on a comparative basis, to point the way very far in this direction. The most complete set of test data was given by J. F. Macphearson of the Lynn Works of General Electric Company in an article entitled "High Temperature High Speed Testing of Ball Bearing Greases."* Some of this work was also covered by an article in the General Electric Review for August, 1945.

Although the temperature of the bearings was held at nearly 150° C., the speed used during these tests was 8500 rpm or more, as the test appartus was aircraft generators. Bearings operating at this speed can be run successfully on hard greases that might be too stiff to work efficiently at lower speeds. Plans are going forward for the construction of a piece of standard test apparatus that will evaluate greases in bearings of at least average size over a wide temperature and speed range.

Mr. Macphearson's article stresses the bleeding of oil from a grease in the right proportion as a very important factor for satisfactory lubrication. This is especially true at high temperatures. Unfortunately, at the present time there is no approved method for measuring the rate of oil released from a grease to the bearing, as distinct from the proposed bleeding tests for greases, which are conducted while the grease is not

* A.S.T.M. Bulletin, May, 1946.

being agitated or churned as it might be in a bearing housing.

Again, there is very little data available on the maximum viscosity of the oils practical for use in making high-temperature greases. Probably one of the limiting features would be the temperature at which these greases must operate on the low side. Most high-viscosity oils have high pour tests, and a grease made from them that would be efficient at temperatures much below 20° F. would be unusual. But if the ambient temperature is always high, this type of an oil would not be a drawback from that angle, but might cause the bearing to heat up excessively. More experimenting along this line remains to be done.

Of the new types of greases being manufactured which have good possibilities for high temperature use, two varieties stand out prominently. These are the silicone greases and those made of synthetic oils not of the silicone type.

There are several grades of silicone grease available, and claims have been made for successful operation for hundreds of hours at temperatures of 300° F. or even close to 400° F. One good feature of the silicone greases is that there is very little of the evaporation loss or change of consistency between low and high temperatures, that is found in the ordinary grease made from petroleum oils. There are factors of wear to be considered and overcome, however, before these greases can gain unqualified approval.

The other synthetic but non-silicone variety includes at least two types of synthetic oils of definite chemical composition which are combined with suitable soaps to make greases. At present *lithium* is finding considerable favor as a soap.

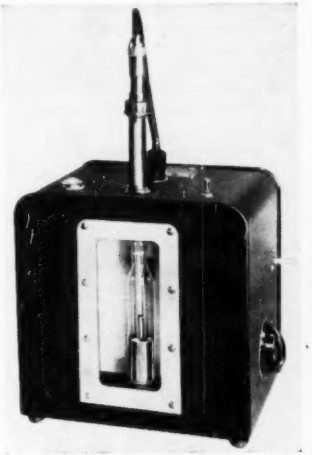
These greases were developed by government agencies during the war, but are now being made commercially by several companies. They have low evaporation loss and seem to have a wider temperature range, both on the high and the low side, than greases made from the same viscosity of petroleum oils.

Most greases seen up to the present time have not contained oils of very high viscosity, and the conclusion arises that a more complex synthetic oil of higher viscosity will be needed to make a real high temperature grease. There are problems of corrosion to contend with here too, but those can be overcome. The rate of wear is not a factor, at least in some types of these greases. All in all, they seem to show the greatest promise of any products for further development, and a thorough, cooperative test program is planned for them soon.

With these facts in mind, it can truthfully be said progress is being made in developing greases that will operate under higher temperatures. As each objective is met, there will always be some application which requires performance at a still more elevated temperature, providing a new goal to shoot at. Eventually, greases should be available that will meet all the temperature demands imposed upon them.

Micro-Set Manostat Regulates And Holds Constant Vacuum

The Precision Scientific Company has developed the Micro-Set Manostat, for regulating and holding a constant vacuum. Its most intensive application will be found in the Petroleum, Organic Chemical and similar industries for vacuum distillation.



The apparatus is installed between a vacuum pump and a distillation system. It operates on a principal of controlled leaks to atmosphere. Excess vacuum is leaked constantly, if necessary, through one end of a double glass stopcock. Leakage at the other end of the stopcock is controlled through a Micro-Set platinum-to-mercury regulator which actuates a solenoid (through a relay) to open or close a leak as needed.

The Micro-Set Manostat has a control sensitivity of better than 0.05 mm. Hg. and it operates from atmospheric to absolute vacuum. Within any 100 mm range, the Micro-Set regulator is the only adjustment used. Glass parts are fitted with ground glass connections. To promote accurate operation, the entire unit is enclosed in a dust proof housing.

Books and Publications

. . . ABOUT THE INDUSTRY

All books reviewed on this page may be obtained from the office of the National Lubricating Grease Institute, 4638 Mill Creek Parkway, Kansas City 2, Missouri.

The Chemistry of Petroleum Derivatives

by the late Carleton Ellis, formerly Industrial Research Chemist

Volume I—1,285 pages, 48 figures, $20.00

Volume II (Supplementary)—1,464 pages, 350 illustrations, $22.50

"The book in its 1,285 pages is a veritable encyclopedia and the mass of material concerned with the development and utilization of the derivatives of natural gas and petroleum will be indispensable to technologists. It really stands in a definite class by itself by reason of its extraordinary comprehensiveness . . . Frequently a reviewer, impressed with the authoritative way in which a book before him has been produced, is inclined to say, 'This work is indispensable.' In no case within your reviewer's knowledge is that statement more true than in Carleton Ellis's stupendous compilation."—A. E. Dunstan, in Chemistry and Industry.

The Chemistry of Synthetic Resins

by the late Carleton Ellis

Two parts in one volume, 6x9, 1,615 pages, $22.50

Thirteen years after publication, the original edition of this unparalleled treatise is still in active demand—a record which few technical books can boast!

Absolutely unique in its meticulous coverage of the field of synthetic resin development up to 1935, it is a vast and almost inexhaustible reservoir of information on patents, processes and uses of all the basic types of resins.

Nearly 13,000 copies of this monumental work have been purchased by chemists, laboratories and libraries the world over. Now is the time to order yours!

The Chemistry and Technology of Waxes

by Albin H. Warth, Chemical Director, The Crown Cork and Seal Co., Baltimore, Md.

525 pages, illustrated, $10.00

This book is a clearly written, systematic, comprehensive, and descriptive presentation of the chemical composition of natural and synthetic waxes. The chapter on the chemical components of waxes with its many tables of physical constants of the wax fatty acids, alcohols, esters, and other derivatives enhances the value of the book as a reference. It may be remarked that books on oils, fats, and waxes cover the first two subjects adequately in most cases but neglect the third. This volume, therefore, not only supplies sought-after, highly specific information in the field of waxes but fills the need for an up-to-date treatment of the subject in the English language.

CONTENTS: Foreword; Introductory; Chemical Components of Waxes; The Natural Waxes; Fossil Waxes, Earth Waxes, and Lignite Paraffins; Petroleum Waxes; Synthetic Waxes and Wax Compounds; Emulsifiable Waxes, Waxy Acids and Metallic Soaps; Methods for Determining the Constants of Waxes; Wax Technology—Uses in Industry. Appendix, Tables of Physical Constants of Waxes. Authhor Index. Subject Index.

Oil! Titan of the Southwest

by Carl Coke Rister

432 pages, 40 pages of illustrations, maps, charts, graphs, $5.00.

The rush for oil riches is one of the most spectacular events in American history.

The wealth involved makes almost insignificant comparable searches for gold and other metals in North America.

This book, the fruit of three years of steady research and writing, is the story of the discovery and production of oil in the "Great Pool" from the days of the so-called oil springs, through *Spindletop, Glenn Pool, Mexia, Oklahoma City, East Texas,* and other strikes. It is an absorbing account of the ment who have produced the prime resource of an industrial civilization, written by a distinguished historian of the Southwest.

A significant and important contribution, which will be of great value and interest to everyone, from the prospector, investor, and tool pusher, to the average American who has hardly been aware of the enormous transformation which has carried the United States into the "age of oil."

Ion Exchange—Theory and Application

edited by Frederick C. Nachod, Sterling-Winthrop Research Institute, Rensselaer, New York

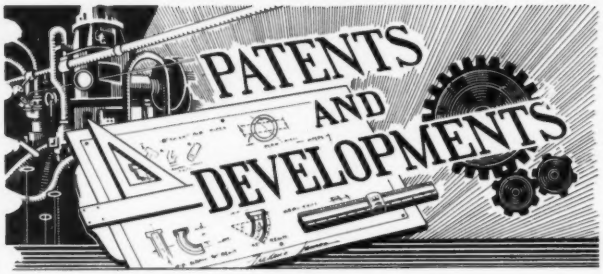
1949, approximately 400 pages, illustrated, about $8.00

The principles of ion exchange have been well known for the past hundred years, but only in the last decade have they been applied to fields other than water conditioning. It may come as a surprise to many that ion exchange has found its way into such divergent fields and industries as food research, catalysis, the separation of rare earth elements, metal recovery, drug manufacture and many more.

The theory of ion exchange processes also has never been fully understood until just recently. The new commercial interest has stimulated research and resulted in a greater number of papers scattered throughout the scientific periodicals.

Here, for the first time, is a concise, up-to-date treatise on this new and important development, a cooperative effort by seventeen of the foremost experts in this country.

It is not every day that a new unit process is born. Ion Exchange is coming into its own to take its place alongside of the older and well-established unit processes, distillation, filtration, adsorption, etc. At this time, when it is most essential to have a text at hand that completely covers the field, we are happy to introduce *Ion Exchange—Theory and Application.*



VACUUM PILOT MIXER — A manually operated vacuum pilot mixer has been designed by L. O. Koven & Bro., Inc. for testing heavy lubricating oils in test lots of 5 gals. The agitator is operated by a hand crank, and a thermometer and pressure gauge are provided (See cut) (Petr. Proc. 4/49 p.442).

NAPHTHENATE SOAPS — A patent issued to Darworth, Inc., describes a fusion process for making water insoluble salts (metal) of water insoluble organic acids by adding to the molten reaction mass of acid and metal compound a preformed mixture of a basic nitrogen compound with a metallic compound capable of forming a Werner complex with the nitrogen compound (U.S. 2,466,925).

METAL MACHINING LUBRICANT—A lubricant suitable for metal machining operations contains 100-125 parts petroleum lubricating oil, 1-5 parts comminuted graphite, 1-16 parts turpentine oil, 1-2 parts iron oxide, and 1-5 parts carbon tetrachloride (U.S. 2,466,927) (Graphol Prods. Co.).

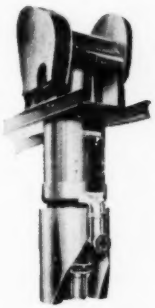
COMPLEX FROM POLYVALENT SULFONATE—A Standard Oil Development Co. patent describes a lube oil containing 0.1-5% of a complex formed between a polyvalent metal hydrocarbon sulfonate and an ammonium salt such as chloride or nitrate (U.S. 2,467,118).

SOLID GREASE—A lubricant grease of solid consistency is disclosed in a patent to Standard Oil Development Co. It contains 5-40% acetylene black incorporated in a substantially hydrocarbon-insoluble inert fluorinated hydrocarbon mixture of 60-80% fluorine content, obtained by fluorination of a gas oil fraction (U.S. 2,467,145).

HIGH TEMPERATURE LUBRICATION — In a recent article, Ross of E. F. Houghton & Co., reports on a survey of bearing temperatures in plant equipment. He breaks down high temperature lubrication problems into 4 classifications: (1) 150°-300° F., (2) 300°-450° F., (3) 450°-650° F., and (4) over 650° F. Typical cases are given, particularly as applied to the ceramics industry (Cer. Ind. 4/49, p. 83).

DISSOLVING SALTS OF DITHIOPHOSPHORIC ACID — An American Cyanamid Co. patent describes a process for preparing a solution in lubricating oil of a heavy metal salt of an oil soluble diester of dithiophosphoric acid by adding the ester to a dispersion in mineral oil of a divalent metal base (Ca or Zn), the dispersion, containing 0.1-5.0% water, reacting at 20°-90° C., and removing the oil-insoluble reaction salts by filtration (U. S. 2,466,408).

GREASE GUN—A grease gun head for lever-type operated guns is covered in a recent patent issued to Sundholm (Can. 455,625).



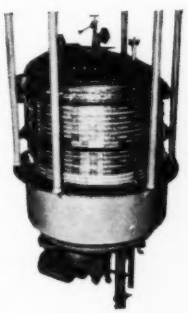
PULP PRESS — Jackson & Church Co. of Saginaw, Mich., is presenting its new ZM intermediate pulp press for the continuous separation of liquids from solids. A special feature is the "floating cone" which automatically controls the cake discharge opening and assures constant uniform discharge at any predetermined pressure (Chem. Proc. Prev. 3/49, p. 131) (See cut).

NON-BLEEDING GREASE—An anhydrous non-bleeding grease consisting of equal amounts of a heavy hydrocarbon oil and a normally solid soap of a fatty acid, containing less than 3% glycerin and a fatty acid pitch, is disclosed in a Standard Oil Dev. Co. patent (Can. 455,748)

LITHIUM GREASES — Workers in the Fafnir Labs. report that new lithium base greases appear to cure fretting corrosion which occurs in small antifriction bearings subjected to vibratory conditions during small oscillating motion (Petr. Times 4/8/49, p. 251).

OUTBOARD MOTORS—The greasing of gears of outboard motors is taken up in detail in the April, 1949, issue of "Lubrication".

METAL LUBRICANT — Shell Development Co. covers a lubricant consisting of 1-25% of a laminated foliated finely divided antiscoring agent (graphite, molybdenum disulfide, vermiculite, talc, tungsten disulfide, zinc oxide, calcium oxide, mica, silver sulfate or lead iodide), also 10-25% polyisobutylene, and the balance being a polymeric silicon-containing compound (U. S. 2,466,642).



ELECTRICALLY HEATED KETTLE — A special Pfaudler stainless steel kettle has been constructed for Gilman Paint & Varnish Co. to be used in processing synthetic resin and bodying oils. Such a unit might be applicable in special grease production (Poste, Glass Lining, Vol. 17, No. 4, p. 2) (See cut).

BROCHURES ON ELECTRIC HEATING — General Electric has issued pamphlets giving engineering data and directions for designing electric heaters. They are entitled "Heating Liquids with Electric Heaters", "Heating Surfaces with Electric Heaters" and "Heating Pipelines with Electric Heaters".

LOW TEMPERATURE LUBRICANT—Still another Standard Oil Development patent specifies a grease consisting essentially of an oily ester of the general formula $COOR_1$-R-$COOR_2$, the ester being thickened to grease consistency by adding 5-25% of a carbon black having high oil absorption and oil thickening capacity (U.S. 2,467,147).

OIL INSOLUBLE LUBRICANT—A further Standard Oil Development patent on an acetylene black-containing lubricant specifies 1-20% of the black and 80-99% of an oily acrylonitrile-diolefin type copolymer composed of 76-55% diolefin of 4-12 carbon atoms, and 24-45% of acrylonitrile, the polymerization being done in presence of a mercaptan (U.S. 2,467,148).

GREASE GUN—A new portable gun ($9.37) which develops a pressure of 10,000 psi, was announced by Alemite Corp. (N.Y. Times 4/2/49 p. 51).

CONCENTRATE TO BE ADDED TO LUBE OILS—A method for preparing a fluid concentrate of a complex chemical product from an alkaline earth metal salt of a petroleum sulfonic acid involves emulsifying an oil-soluble mineral oil solution containinng 1 molecular proportion of the salt with 0.2-1 molecular proportion of an alkaline earth metal chloride in the form of a 10-30% aqueous solution, heating the emulsion in presence of 0.3-1.5% alkaline earth metal hydroxide at over 260° F. to completely dehydrate the mixture, and filtering off insoluble material (U.S. 2,467,176) (Standard Oil Development Co.).

COLLOIDAL GREASE—Another Standard Oil Development Co. patent covers a hydrocarbon oil-insoluble colloidal lubricating grease containing essentially glycerin or petroleum insoluble non-drying fatty acid glycerides, thickened to a grease-like consistency by incorporating therein 11-18% of acetylene carbon black (U.S. 2,467,146).

PATENTS AND APPLICATIONS

Brit. Appl. 4247/49 (Standard Oil Dev. Co.)—Lubricating grease.

Brit. Appl. 7411/49 (Shell Oil)—Organic sulfonates.

Brit. Pat. 618,767 (Swan & Co.)—Amino-amine soaps.

DR. S. C. OGBURN, JR.

Dr. Ogburn Becomes A Foote Director

Dr. S. C. Ogburn, Jr., who last year joined Foote Mineral Company of Philadelphia, as Manager of Research and Development was appointed a Director of that firm at a recent Stockholders meeting. Dr. Ogburn will continue to spark Foote's accelerated research and development program.

The scope of Foote's research and development activities include the development of new and improved products and processes in the chemical, metallurgical and ceramic fields. Various projects in these divisions have recently been supplemented by several substantial contracts with government agencies as well as other customers who are heavy consumers of Foote Products. In all Foote's development projects, Dr. Ogburn is placing emphasis on product evaluation and market applications of materials successfully completed in either the laboratory or pilot plant. Dr. Ogburn's training, technical background and demonstrated ability in both research and administration make him uniquely suited to Foote Mineral Company's needs and aims. He received the Bachelor of Science degree from the University of North Carolina in 1921, his Master's from Washington and Lee in 1923 and his Doctorate from North Carolina in 1926. Following several years as a member of the faculty of Washington and Lee University, Dr. Ogburn joined the faculty of Bucknell University as Professor of Chemical Engineering in 1926. He served as head of this department from 1928 to 1936 and Chairman of the engineering division from 1933 to 1938, leaving to serve in capacities of Project Engineer, Technical Supervisor and Research Manager of the General Chemical Company, New York. In this last capacity, Dr. Ogburn was administrative supervisor of the entire research division as well as director of all projects at the company's laboratory.

In 1943 Dr. Ogburn became associated with the Pennsylvania Salt Manufacturing Company in Philadelphia as Manager, Research and Development. From 1943 until joining Foote he was responsible for a considerable growth and diversification in both organization and research facilities for that company, including the Whitemarch Research Laboratories.

Dr. Ogburn is a member of the American Chemical Society, The American Society of Engineering Education, The American Institute of Chemical Engineers, The Chemical Society of London, Sigma Xi as well as Charter Member of the Virginia Academy of Science, Alpha Chi Sigma, and Pi Mu Epsilon. He is also one of the founders and present secretary of the Research Management Group of Philadelphia, and is author of numerous technical publications in the United States and abroad and holder of several patents in the chemical field.

A.S.T.M. Plans First Pacific Area National Meeting

The American Society for Testing Materials will have its first Pacific Area National Meeting in San Francisco the week of October 10. An extensive technical program is being developed and several technical committees of the A. S. T. M. will meet there.

Arrangements have been made for technical sessions. Of interest to our industry will be the session on Petroleum (High Additive Content Oils) and Petroleum (Turbine Oils), which are scheduled for October 12.

A complete list of the technical papers can be procured after June 15 from the A. S. T. M., 1916 Race Street, Philadelphia 3, Pa.

The Society and its Pacific Area General Committee extends a cor-

dial invitation to all interested to attend this meeting. A great deal of the work carried out by A. S. T. M. involving standardization and research in the fields of materials is of vital interest to industries on the Coast and in the Rocky Mountain area. The A. S. T. M. Board of Directors welcomes the opportunity of sponsoring this First National Meeting.

L. Sonneborn Sons Introduces Phenoplast to the Press

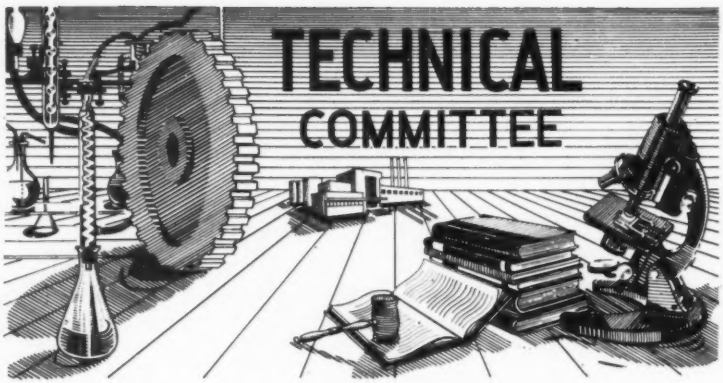
L. Sonneborn Sons, Inc., hosted a luncheon for the press at the Belmont Plaza Hotel on May 17th to introduce the new plastic finish—Phenoplast. Outdoing even Jack Mallan, sleight-of-hand wizard, Phenoplast performed a magic of its own that will make for marvelous carefree living in the world of Today and Tomorrow. Phenoplast is a liquid finish which not only "coats" the surface but becomes practically an integral part of the material to which it is applied. Its secret lies in a catalyst, which, when added to a phenolic resin base produces Phenoplast. This is the first phenolic plastic finish ever made without baking or pressure molding. Phenoplast is applied like varnish and renders the object phenoplasted well-nigh damage proof. Used like glue, it becomes an almost inseparable "joiner" so that wood or metal so welded stay put through wind, weather, temperature changes and almost any amount of wear and tear.

The incredible abuse-resistance of this coating was graphically demonstrated in a series of informative, live skits. Tough, rugged and transparent, Phenoplast gives woods, metals, steel, tile, masonite and composition materials a degree of surface protection never before possible without a baked-on-finish. Think, for instance, of being able to own furniture that will resist the ravages of alcohol, exposure to flame, penetrating ink blobs and most acids, and that will have remarkable resistance to abrasion and wear. Think of wallpaper protected from the murderous marrings and markings of small children, of floors that even roller skating will not damage, of luggage that is almost unscratchable, of automobiles that keep shiny, new and scratch-proof. This can happen here in the very near future.

Phenoplast's high resistance makes it possible to withstand temperatures from far below zero right up to the boiling point and higher. Unaffected by practically every acid and chemical solvent, as well as water, gasoline, oils, alkalies, salt spray and strong brines, it penetrates and hardens as a physical part of a porous surface. With a companion undercoat, this same adhesive quality can be given to non-porous surfaces, even to glass. It is believed that hundreds of other uses not yet explored will develop industry-wise as time goes on, for experiments are going on apace in dozens of different fields.

Phenoplast finished furniture, luggage, household articles, golf clubs, fishing rods, boats and hundreds of other products will soon be appearing on the market and should endure longer than actuarial charts can estimate, for Phenoplast gives added life and serviceability to everything it touches. Phenoplast for home use and application will also be available in the next few months, retailing at $2.50 per pt., $12.50 per gallon.

For first-hand information attend the N.L.G.I. annual meeting in New Orleans, October 3-4-5. Make your reservation now.



By H. L. HEMMINGWAY
Vice-Chairman, N.L.G.I. Technical Committee

As promised last month, more details will be made available this month on the meeting of the joint ABEC-NLGI Committee on Grease Test Methods held during March at the headquarters of the ABEC in New York. Unfortunately, the minutes have not yet been completely approved, so we will not try to cover that part which has to do primarily with ABEC matters, until the minutes are approved by the ABEC. Also, the other subjects will have to be covered from memory.

Considerable discussion was devoted to the subject of Allowable Dirt Content in Greases and Methods of Measuring Dirt Content. Mr. Gustafson, of the Marlin-Rockwell Corporation, who is Chairman of the Subcommittee on Determination of Allowable Dirt Content, reported that various tests had been made on greases containing the maximum dirt allowed by the AN-G specifications. It was found (primarily by the "feel" test using ball bearings packed with the test greases) that this content was too high. (The dirt used for this work was all of hard, highly abrasive type which is, of course, rarely found in lubricating greases in this amount.) Further work will be done to determine whether the number of particles or the size should be reduced to obtain the maximum allowable dirt content.

Mr. Gothard, of Sinclair, who was Chairman of the Subcommittee on Determination of Dirt Count in Greases, submitted a report which arrived too late for the meeting, but which very ably outlined the problem and progress made to date on different methods of test. However, Mr. McGrogan of Atlantic Refining Co., who replaced Dr. J. C. Geniesse on the ABEC-NLGI Committee, is Chairman of the ASTM Sub-Section on Methods for Determination of Dirt in Lubricating Greases, Section II, ASTM Committee G. Since the ABEC-NLGI Subcommittee duplicated the work of the ASTM Sub-Section, it was decided that Mr. Gothard's group should be discharged, with the thanks of the Committee, and that Mr. McGrogan would keep the Committee informed regarding the ASTM activities.

Mr. McGrogan stated that the work of this Sub-Section was waiting on a recommendation from Mr. Gustafson's group as to allowable dirt content.

The bearing manufacturers *Grease Guide* is being revised by the ABEC, and a draft of the revision was presented by Co-Chairman C. E. Morse, of Marlin-Rockwell Corporation. Several suggestions were made by members of the Committee and Mr. Morse promised that the *Guide* would be submitted to the entire Committee for comments prior to final approval of ABEC.

The problem of noise in anti-friction bearings as effected by the lubricant was brought up by several bearing manufacturers. In certain applications, the noise level is greatly increased by the lubricant. It so happens that apparently the better lubricants cause the greatest amount of noise. Since this appears to be a new problem to most grease manufacturers, it has been suggested that a short paper or symposium on this subject be presented at some future NLGI meeting.

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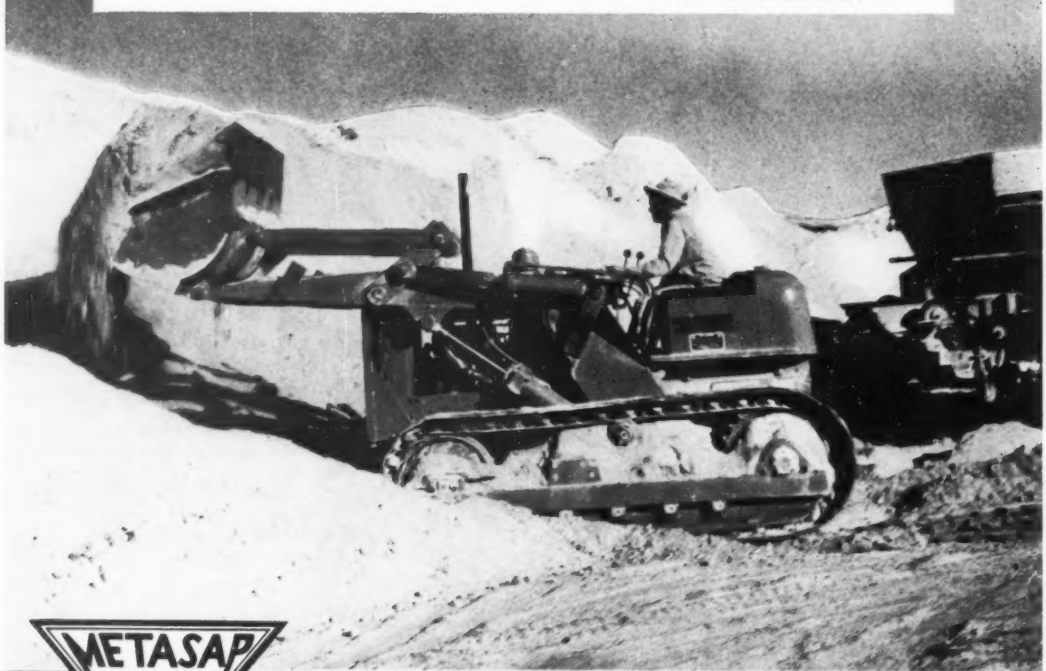

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